San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

SEP 10 2018

Mr. William Shaffer
California Resources Production Corp.
11109 River Run Blvd.
Bakersfield, CA 93311

Re: Proposed ATC / Certificate of Conformity (Significant Mod)
Facility Number: S-1738
Project Number: S-1183082

Dear Mr. Shaffer:

Enclosed for your review is the District's analysis of an application for Authorities to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project consists of installation of ten IC engines serving well pumping units in western Kern county.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the District intends to issue the Authorities to Construct with a Certificate of Conformity. Please submit your comments within the 30-day public comment period, as specified in the enclosed public notice. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Enclosures

cc: Tung Le, CARB (w/enclosure) via email
cc: Gerardo C. Rios, EPA (w/enclosure) via email

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San Joaquin Valley Air Pollution Control District
Authority to Construct Application Review

Facility Name:	California Resources Production Corp.	Date:	September 6, 2018
Mailing Address:	11109 River Run Blvd. Bakersfield, CA 93311	Engineer:	Silvana Procopio
		Lead Engineer:	Richard Karrs
Contact Person:	Doug Shaffer		
Telephone:	(661) 529-4366		
Application #(s):	S-1738-532-0 through '-541-0		
Project #:	1183082		
Deemed Complete:	July 27, 2018		

I. Proposal

California Resources Production Corp. (CRPC) has requested Authority to Construct (ATC) permits for the installation of ten transportable field gas/LPG-fired IC engines (or equivalent) to power either a well pumping unit or an electrical generator.

The proposed engines are either an Arrow Model A160 with an automatic A/F ratio controller and a three-way catalyst, or an equivalent unit. Conditions on equivalent equipment approval will be included in the ATC.

CRPC received their Title V Permit on January 13, 2000. This modification can be classified as a Title V significant modification pursuant to Rule 2520, and can be processed with a Certificate of Conformity (COC – See Appendix C). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. CRPC must apply to administratively amend their Title V permit. The following conditions will be added to each permit:

- *{1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201]*
- *{1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]*

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (2/18/16)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4001	New Source Performance Standards (4/14/99)
Rule 4002	National Emissions Standards for Hazardous Air Pollutants (5/20/04)
Rule 4101	Visible Emissions (2/17/05)

Rule 4102	Nuisance (12/17/92)
Rule 4201	Particulate Matter Concentration (12/17/92)
Rule 4701	Internal Combustion Engines – Phase 1 (8/21/03)
Rule 4702	Internal Combustion Engines (11/14/13)
Rule 4801	Sulfur Compounds (12/17/92)
CH&SC 41700	Health Risk Assessment
CH&SC 42301.6	School Notice

Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The units will be authorized to operate at various unspecified locations and at least 815 meters from the nearest receptor or boundary within the Buena Vista Nose Facility lease, Sections 1 through 23, T32S, R25E; and Sections 31 through 35, T31S, R25E.

All locations are in CRPC's Light Oil Western stationary source. The equipment is not located within 1,000 feet of the outer boundary of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. Process Description

The engines will be used to power either a crude oil well pump or an electrical generator.

V. Equipment Listing

S-1738-532-0 through '-541-0:	215 BHP ARROW MODEL A160 (OR EQ) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

VI. Emission Control Technology Evaluation

The proposed IC engines will be equipped with Non-Selective Catalytic Reduction (NSCR) that decreases NO_x, CO, and VOC emissions by using a catalyst to promote the chemical reduction of NO_x into N_2 and O_2, and the chemical oxidation of VOC and CO into H_2O and CO_2.

The fuel/air ratio controller (oxygen controller) is used in conjunction with the NSCR to maintain the amount of oxygen in the exhaust stream to optimize catalyst function.

VII. General Calculations

A. Assumptions

- Operating schedule: 24 hrs/day, 8,760 hrs/yr (per applicant)
- The engines will operate continuously.
- Maximum continuous rated brake horsepower (bhp): 215 (engine manufacturer)
- The engines will be authorized to fire on either LPG or field gas
- Gas heating value is 1,000 Btu/scf (APR 1720)
- EPA F-factor (adjusted to 60 °F) is 8,578 dscf/MMBtu (40 CFR 60 Appendix B)
- Sulfur content of field gas 3.0 gr/100 scf (applicant)
- BHP to Btu/hr conversion is MMBtu/393.24 bhp-hr
- Thermal efficiency of engine is commonly ≈ 35%

B. Emission Factors

The PM_{10} emission factor is based on source test data from project S-990589 that authorized the installation of several 4-stroke rich-bum Waukesha gas-fired engines rated at 162 bhp and equipped with catalytic converters. As these engines are very similar in type (gas-fired, 4-stroke, and rich-burn), and equipped with similar emission controls, the PM_{10} emissions factor of 0.01 g/bhp-hr used to calculate emissions in project S-990589 will be used to calculate potential emissions for the proposed engines in this project. A source testing will be required to ensure PM10 emission factor remains the same.

Emission Factors			
Pollutant	Emission Factor	Emission Factor (g/bhp-hr)	Source
NO_X	5 ppm	0.060	Engine Manufacturer
SO_X	- -	0.028	Equation Below*
PM_{10}	- -	0.01	Source Test (S-990589)
CO	50 ppm	0.364	Engine Manufacturer
VOC	15 ppm	0.062	Engine Manufacturer

$$EF_{SOx} = \frac{3\ gr_S}{100\ scf} \times \frac{1\ scf}{1{,}000\ Btu} \times \frac{1\ lb}{7{,}000\ gr} \times \frac{2\ lb_{SO2}}{1\ lb_S} \times \frac{2{,}543\ Btu}{hp.hr} \times \frac{1\ hp_{out}}{0.35\ hp} \times \frac{453.6\ g}{lb}$$

$$EF_{SOx} = \frac{0.028\ g_{SOx}}{hp\text{-}hr}$$

Note: The SOx EF for field gas with a maximum sulfur content 3.0 gr/100 scf is 0.028 g-SOx/hp-hr, which is greater than the LPG EF (0.012 gr-SOx/hp-hr – from CARB

Emissions Inventory Database); therefore, the EF will be set at 0.028 g/hp-hr, as the worst case scenario.

C. Calculations

1. Pre-Project Potential to Emit (PE1)

Since the engines are new emissions units, PE1 = 0 for all pollutants.

2. Post Project Potential to Emit (PE2)

The potential to emit for each engine (as they are all identical) is calculated as follows and summarized in the table below:

Daily Post Project Emissions						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Daily Hours of Operation (hr/day)	Conversion (g/lb)	PE2 Total Each Engine (lb/day)	PE2 Total All 10 Engines (lb/day)
NO_X	0.06	215	24	453.6	0.7	6.8
SO_X	0.028	215	24	453.6	0.3	3.2
PM_{10}	0.01	215	24	453.6	0.1	1.1
CO	0.364	215	24	453.6	4.1	41.4
VOC	0.062	215	24	453.6	0.7	7.1

Annual Post Project Emissions						
Pollutant	Emissions Factor (g/bhp-hr)	Rating (bhp)	Annual Hours of Operation (hr/yr)	Conversion (g/lb)	PE2 Total Each Engine (lb/yr)	PE2 Total All 10 Engines (lb/yr)
NO_X	0.06	215	8,760	453.6	249	2,491
SO_X	0.028	215	8,760	453.6	116	1,163
PM_{10}	0.01	215	8,760	453.6	42	415
CO	0.364	215	8,760	453.6	1,511	15,114
VOC	0.062	215	8,760	453.6	257	2,574

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to District Rule 2201, the SSPE1 is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source

and the quantity of Emission Reduction Credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions (AER) that have occurred at the source, and which have not been used on-site.

SSPE1* (lb/year)					
Permit Unit	**NO_X**	**SO_X**	**PM_{10}**	**CO**	**VOC**
SSPE Calculator	547,244	70,265	80,552	5,474,200	1,131,261
SSPE1	**547,244**	**70,265**	**80,552**	**5,474,200**	**1,131,261**

*Facilities S-382, S-1216, S-1738, S-8282, and S-8454 constitute the same light oil western stationary source.

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to District Rule 2201, the SSPE2 is the PE from all units with valid ATCs or PTOs at the Stationary Source and the quantity of ERCs, which have been banked since September 19, 1991 for AER that have occurred at the source, and which have not been used on-site.

For this project, the change in emissions for the facility is due to the installation of ten new gas-fired IC engines, permit units '-532 through '-541. Thus:

SSPE2 (lb/year)					
Permit Unit	NO_X	SO_X	PM_{10}	CO	VOC
SSPE1	547,244	70,265	80,552	5,474,200	1,131,261
S-1738-532 through '-541	2,491	1,163	415	15,114	2,574
SSPE2	**549,735**	**71,428**	**80,967**	**5,489,314**	**1,133,835**

5. Major Source Determination

Rule 2201 Major Source Determination:

Pursuant to District Rule 2201, a Major Source is a stationary source with a SSPE2 equal to or exceeding one or more of the following threshold values. For the purposes of determining major source status, the following shall not be included:

- any ERCs associated with the stationary source
- Emissions from non-road IC engines (i.e. IC engines at a particular site at the facility for less than 12 months)

- Fugitive emissions, except for the specific source categories specified in 40 CFR 51.165

Rule 2201 Major Source Determination (lb/year)						
	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO	VOC
SSPE1	547,244	70,265	80,552	80,552	5,474,200	1,131,261
SSPE2	549,735	71,428	80,967	80,967	5,489,314	1,133,835
Major Source Threshold	20,000	140,000	140,000	140,000	200,000	20,000
Major Source?	**Yes**	**No**	**No**	**No**	**Yes**	**Yes**

Note: PM2.5 assumed to be equal to PM10

This source is an existing Major Source for NOx, CO, and VOC pollutants and will remain a Major Source for these pollutants. The source is not becoming a new major source for any other pollutant.

Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(iii). Therefore, the PSD Major Source threshold is 250 tpy for any regulated NSR pollutant.

PSD Major Source Determination (tons/year)						
	NO_2	VOC	SO_2	CO	PM	PM_{10}
Estimated Facility PE **before** Project Increase	274	566	35	2,737	40	40
PSD Major Source Thresholds	250	250	250	250	250	250
PSD Major Source ? (Y/N)	**Yes**	**Yes**	**No**	**Yes**	**No**	**No**

As shown above, the facility is an existing PSD major source for at least one pollutant.

6. Baseline Emissions (BE)

The BE calculation (in lb/year) is performed pollutant-by-pollutant for each unit within the project to calculate the QNEC, and if applicable, to determine the amount of offsets required.

Pursuant to District Rule 2201, BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to District Rule 2201.

Since the engines are new emissions units, **BE = PE1 = 0 for all criteria pollutants.**

7. SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 as "any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."

Since this facility is a major source for CO, NOx, and VOC, the project's PE2 is compared to the SB 288 Major Modification Thresholds in the following table in order to determine if the SB 288 Major Modification calculation is required.

SB 288 Major Modification Thresholds			
Pollutant	**Project PE2 (lb/year)**	**Threshold (lb/year)**	**SB 288 Major Modification Calculation Required?**
NO_x	2,491	50,000	No
SO_x	1,163	80,000	No
PM_{10}	415	30,000	No
VOC	2,574	50,000	No

Since none of the SB 288 Major Modification Thresholds are surpassed with this project, this project does not constitute an SB 288 Major Modification.

8. Federal Major Modification

District Rule 2201 states that a Federal Major Modification is the same as a "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

For new emissions units, the increase in emissions is equal to the PE2 for each new unit included in this project.

The project's combined total emission increases are compared to the Federal Major Modification Thresholds in the following table:

Federal Major Modification Thresholds for Emission Increases			
Pollutant	**Total Emissions Increases (lb/yr)**	**Thresholds (lb/yr)**	**Federal Major Modification?**
NO_x	2,491	0	**Yes**
VOC	2,574	0	**Yes**
PM_{10}	415	30,000	**No**
$PM_{2.5}$	415	20,000	**No**
SO_x	1,163	80,000	**No**

Since there is an increase in NO_x and VOC emissions, this project constitutes a Federal Major Modification. Federal Offset quantities are calculated below.

Federal Offset Quantities:

The Federal offset quantity is only calculated for the pollutants for which the project is a Federal Major Modification. The Federal offset quantity is the sum of the annual emission changes for all new and modified emission units in a project calculated as the potential to emit after the modification (PE2) minus the actual emissions (AE) during the baseline period for each emission unit times the applicable federal offset ratio. There are no special calculations performed for units covered by an SLC.

NOx **Federal Offset Ratio** **1.5**

Permit No.	**Actual Emissions (lb/year)**	**Potential Emissions (lb/year)**	**Emissions Change (lb/yr)**
S-1738-532-0 through '541-0	**0**	**2,491**	2,491
		Net Emission Change (lb/year):	2,491
		Federal Offset Quantity: (NEC * 1.5)	**3,737**

VOC **Federal Offset Ratio** **1.5**

Permit No.	Actual Emissions (lb/year)	Potential Emissions (lb/year)	Emissions Change (lb/yr)
S-1738-532-0 through '541-0	0	2,574	2,574
		Net Emission Change (lb/year):	2,574
		Federal Offset Quantity: (NEC * 1.5)	**3,861**

9. Rule 2410 – Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to any pollutant regulated under the Clean Air Act, except those for which the District has been classified nonattainment. The pollutants which must be addressed in the PSD applicability determination for sources located in the SJV and which are emitted in this project are: (See 52.21 (b) (23) definition of significant)

- NO_2 (as a primary pollutant)
- SO_2 (as a primary pollutant)
- CO
- PM
- PM_{10}

I. Project Location Relative to Class 1 Area

As demonstrated in the "PSD Major Source Determination" Section above, the facility was determined to be an existing PSD Major Source. Because the project is not located within 10 km (6.2 miles) of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Project Emission Increase – Significance Determination

a. Evaluation of Calculated Post-project Potential to Emit for New or Modified Emissions Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the post-project potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if the total potentials to emit from all new and modified units are below the applicable thresholds, no further PSD analysis is needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)					
	NO_2	SO_2	CO	PM	PM_{10}
Total PE from New and Modified Units	1	1	8	0	0
PSD Significant Emission Increase Thresholds	40	40	100	25	15
PSD Significant Emission Increase?	**No**	**No**	**No**	**No**	**No**

As demonstrated above, because the post-project total potentials to emit from all new and modified emission units are below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 and no further discussion is required.

10. Quarterly Net Emissions Change (QNEC)

The QNEC is calculated solely to establish emissions that are used to complete the District's PAS emissions profile screen. Detailed QNEC calculations are included in Appendix D.

VIII. Compliance Determination

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis. Unless specifically exempted by Rule 2201, BACT shall be required for the following actions*:

a. Any new emissions unit with a potential to emit exceeding two pounds per day,
b. The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,

c. Modifications to an existing emissions unit with a valid Permit to Operate resulting in an Adjusted Increase in Permitted Emissions (AIPE) exceeding two pounds per day, and/or
d. Any new or modified emissions unit, in a stationary source project, which results in an SB 288 Major Modification or a Federal Major Modification, as defined by the rule.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

As seen in Section VII.C.2 above, the applicant is proposing to install new IC engines each with a PE greater than 2 lb/day and with SSPE2 greater than 200,000 lb/yr for CO. Therefore, BACT for new units with PE > 2 lb/day purposes is triggered for CO.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore, BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

As discussed in Section I above, there are no modified emissions units associated with this project. Therefore, BACT is not triggered.

d. SB 288/Federal Major Modification

As discussed in Sections VII.C.7 and VII.C.8 above, this project does constitute a Federal Major Modification for NO_x and VOC emissions. Therefore, BACT is triggered for NO_x and VOC for all emissions units in the project for which there is an emission increase.

2. BACT Guideline

BACT Guideline 3.3.12 applies to the non-agricultural fossil fuel-fired IC engines greater than 50 horsepower (See Appendix E).

3. Top-Down BACT Analysis

Per Permit Services Policies and Procedures for BACT, a Top-Down BACT analysis shall be performed as a part of the application review for each application subject to the BACT requirements pursuant to the District's NSR Rule.

Pursuant to the attached Top-Down BACT Analysis (see Appendix E), BACT has been satisfied with the following:

NO_X: 5 ppm @ 15% O_2
CO: 50 ppm @ 15% O_2
VOC: 15 ppm @ 15% O_2

B. Offsets

1. Offset Applicability

Offset requirements shall be triggered on a pollutant-by-pollutant basis and shall be required if the SSPE2 equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The SSPE2 is compared to the offset thresholds in the following table.

Offset Determination (lb/year)					
	NO_X	**SO_X**	**PM_{10}**	**CO**	**VOC**
SSPE2	549,244	71,428	80,967	5,489,314	1,133,835
Offset Thresholds	20,000	54,750	29,200	200,000	20,000
Offsets Triggered?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for all pollutants. Therefore, offset calculations will be required for this project.

The quantity of offsets in pounds per year is calculated as follows for sources with an SSPE1 greater than the offset threshold levels before implementing the project being evaluated.

Offsets Required (lb/year) = (Σ[PE2 – BE] + ICCE) x DOR, for all new or modified emissions units in the project,

Where,
PE2 = Post Project Potential to Emit, (lb/year)
BE = Baseline Emissions, (lb/year)
ICCE = Increase in Cargo Carrier Emissions, (lb/year)

DOR = Distance Offset Ratio, determined pursuant to Section 4.8

BE = PE1 for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, Located at a Major Source.

otherwise,

BE = HAE

The facility is proposing to install new emissions units; therefore, BE = 0. Also, there are no increases in cargo carrier emissions; therefore, offsets can be determined as follows:

Offsets Required (lb/year) = (Σ[PE2 – 0] + 0) x DOR

Offsets Required (lb/year) = Σ PE2 x DOR

NOx Offsets Required:

The project is a Federal Major Modification for NOx; therefore, pursuant Rule 2201 Section 4.8.1, the offset ratio for federal major modifications is 1.5:1.

The amount of NOx ERCs that needs to be withdrawn is as follows:

Offsets Required for each engine = 249 x 1.5
= 374 lb NOx/year = 93.5 lb/qtr

Offsets Required for all engines = 2,491 x 1.5
= 3,737 lb NOx/year = 934.25 lb/qtr

As shown in the calculation above, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the

fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and X ÷ 4 = Y.z)				
Value of z	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

Therefore, the appropriate quarterly emissions to be offset are as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
Each Emissions Unit	93	93	94	94	374
All Ten Units	934	934	934	935	3,737

The applicant has stated that the facility plans to use the following ERC certificate to offset the increases in NOx emissions associated with this project. The certificate has available quarterly NOx credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
ERC #S-1622-2	1,088	1,088	1,088	1,088	4,352

As seen above, the facility has sufficient credits to fully offset the quarterly NOx emissions increases associated with this project.

Proposed Rule 2201 (offset) Conditions:

- *{4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter – 93 lb, 2nd quarter – 93 lb, 3rd quarter – 94 lb, and 4th quarter – 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201]*

- *ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]*

SOx Offsets Required:

District Policy APR 1130 "Increases in Maximum Daily Permitted Emissions of Less than or Equal to 0.5 lb/day" states, an IPE (PE2 – BE) of less than 0.5 lb/day is rounded to zero for the purposes of triggering NSR requirements, such as offsets. Since the SOx emissions increase is 0.3 lb/day for each emissions unit involved in this project, they will be rounded to zero; therefore, offsets are not triggered for SOx.

PM10 Offsets Required:

District Policy APR 1130 "Increases in Maximum Daily Permitted Emissions of Less than or Equal to 0.5 lb/day" states, an IPE (PE2 – BE) of less than 0.5 lb/day is rounded to zero for the purposes of triggering NSR requirements, such as offsets. Since the PM10 emissions increase is 0.1 lb/day for each emissions unit involved in this project, they will be rounded to zero; therefore, offsets are not triggered for PM10.

VOC Offsets Required:

The project is a Federal Major Modification for VOC; therefore, pursuant Rule 2201 Section 4.8.1, the offset ratio for federal major modifications is 1.5:1. The amount of VOC ERCs that needs to be withdrawn is as follows:

Offsets Required for each engine = 257 x 1.5
= **386 lb VOC/year = 96.5 lb/qtr**

Offsets Required for all engines = 2,574 x 1.5
= **3,861 lb VOC/year = 965.25 lb/qtr**

As shown in the calculation above, the quarterly amount of offsets required for this project, when evenly distributed to each quarter, results in fractional pounds of offsets being required each quarter. Since offsets are required to be withdrawn as whole pounds, the quarterly amounts of offsets need to be adjusted to ensure the quarterly values sum to the total annual amount of offsets required.

To adjust the quarterly amount of offsets required, the fractional amount of offsets required in each quarter will be summed and redistributed to each quarter based on the number of days in each quarter. The redistribution is based on the Quarter 1 having the fewest days and the Quarters 3 and 4 having the most days. The redistribution method is summarized in the following table:

Redistribution of Required Quarterly Offsets (where X is the annual amount of offsets, and X ÷ 4 = Y.z)				
Value of z	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
.0	Y	Y	Y	Y
.25	Y	Y	Y	Y+1
.5	Y	Y	Y+1	Y+1
.75	Y	Y+1	Y+1	Y+1

Therefore, the appropriate quarterly emissions to be offset are as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
Each Emissions Unit	96	96	97	97	386
All Ten Units	965	965	965	966	3,861

The applicant has stated that the facility plans to use the following ERC certificate to offset the increase in VOC emissions associated with this project. The certificate has available quarterly VOC credits as follows:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total Annual
ERC #S-1713-1	1,093	2,620	3,078	1,181	7,972

As seen above, the facility has sufficient credits to fully offset the quarterly VOC emissions increase associated with this project.

Proposed Rule 2201 (offset) Conditions:

- *{GC# 4447 - edited} Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter – 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and 4th quarter – 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/16) for the ERC specified below. [District Rule 2201]*

- *ERC Certificate Number S-1713-1 (or a certificate split from these certificates) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201]*

CO Offsets Required:

CO offsets are triggered by CO emissions in excess of 200,000 lb/year for the facility. As shown previously, the SSPE2 for CO, after this project, is 5,489,314 lb/year; therefore, offset requirements are triggered.

However, pursuant to Rule 2201 Section 4.6.1, "Emission Offsets shall not be required for the following: increases in carbon monoxide in attainment areas if the applicant demonstrates to the satisfaction of the APCO, that the Ambient Air Quality Standards are not violated in the areas to be affected, and such emissions will be consistent with Reasonable Further Progress, and will not cause or contribute to a violation of Ambient Air Quality Standards (AAQS)."

The Technical Services Section of the San Joaquin Valley Air Pollution Control District performed a CO modeling run, using the EPA AERMOD air dispersion model, to determine if the CO emissions from the facility would cause or contribute to an exceedance of any state of federal air quality standard. (See modeling results in Appendix F).

The modeling concluded that the proposed increase in CO emissions will not cause or contribute significantly to a violation of the State and National AAQS. Therefore, the increase in CO emissions is exempt from offsets pursuant to Rule 2201 Section 4.6.1.

C. Public Notification

1. Applicability

Public noticing is required for:

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications,
b. Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
c. Any project which results in the offset thresholds being surpassed,
d. Any project with an SSIPE of greater than 20,000 lb/year for any pollutant, and/or
e. Any project which results in a Title V significant permit modification

a. New Major Sources, Federal Major Modifications, and SB 288 Major Modifications

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

As demonstrated in Sections VII.C.7 and VII.C.8, this project does not constitute an SB 288 but it is a Federal Major Modification for VOC and NOx emissions; therefore, public noticing for Federal Major Modification purposes is required.

b. PE > 100 lb/day

Applications that include a new emissions unit with a PE greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. As seen in Section VII.C.2 above, this project does not include a new emissions unit which has daily emissions greater than 100 lb/day for any pollutant, therefore, public noticing for PE > 100 lb/day purposes is not required.

c. Offset Threshold

The SSPE1 and SSPE2 are compared to the offset thresholds in the following table:

Offset Thresholds				
Pollutant	**SSPE1 (lb/yr)**	**SSPE2 (lb/yr)**	**Offset Threshold**	**Public Notice Required?**
NO_X	547,244	549,735	20,000 lb/year	**No**
SO_X	70,265	71,428	54,750 lb/year	**No**
PM_{10}	80,552	80,967	29,200 lb/year	**No**
CO	5,474,200	5,489,314	200,000 lb/year	**No**
VOC	1,131,261	1,133,835	20,000 lb/year	**No**

As detailed above, all thresholds were already surpassed with this project; therefore, public noticing is not required for offset purposes.

d. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a SSIPE of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE = SSPE2 – SSPE1. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table.

SSIPE Public Notice Thresholds					
Pollutant	**SSPE2 (lb/year)**	**SSPE1 (lb/year)**	**SSIPE (lb/year)**	**SSIPE Public Notice Thresholds**	**Public Notice Required?**
NO_x	549,735	547,244	2,491	20,000 lb/year	**No**
SO_x	71,428	70,265	1,163	20,000 lb/year	**No**
PM_{10}	80,967	80,552	415	20,000 lb/year	**No**
CO	5,489,314	5,474,200	15,114	20,000 lb/year	**No**
VOC	1,133,835	1,131,261	2,574	20,000 lb/year	**No**

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore, public noticing for SSIPE purposes is not required.

e. Title V Significant Permit Modification

As shown in the Discussion of Rule 2520 below, this project constitutes a Title V significant modification. Therefore, public noticing for Title V significant modification is required for this project.

2. Public Notice Action

As discussed above, this project will result in emissions, which would subject the project to some of the noticing requirements listed above. Therefore, public notice documents will be submitted to the California Air Resources Board (CARB) and a public notice will be published in a local newspaper of general circulation prior to the issuance of the ATC for this equipment.

D. Daily Emission Limits (DELs)

DELs and other enforceable conditions are required by Rule 2201 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. The DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

- *The engine shall be fired only on LPG or field gas with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801]*

- *Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ]*

E. Compliance Assurance

1. Source Testing

As per District Rule 4702 Section 6.3.2.1 for new emissions units, NOx, VOC and CO emissions must be tested upon initial start-up every 24 months thereafter.

The PM10 emission factor used for this project is based on source test data from Project S-990589. Since the engine on such project was of a different make (Waukesha), different horsepower rating (162 bhp), and the source test data was from 1993, new source testing for PM10 was proposed in agreement with the applicant.

Due to the small diameter of the engine stack, the applicant suggested the EPA Method 5 or 201A as feasible methods to collect data for PM10. CRPC understands that the results will be treated as total PM10. Therefore, source testing for PM10 will be performed.

The following condition will be placed on each ATC to ensure compliance:

- *Source testing of the NOx, CO, and VOC emissions shall be conducted within 60 days of startup and not less than once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ]*

- *Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201]*

- *The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702]*

2. Monitoring

District Rule 4702 Section 5.8.1 requires periodic monitoring of NOx and CO. Therefore, the following conditions will be included in this permit:

- *The permittee shall monitor and record the stack concentration of NOx (as NO_2), CO, and O2 at least once every quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701, and 4702]*

- *If either the NOx or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702]*

- *All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702]*

Rule 4702 requires that the equipment be fired on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases; or to limit gaseous fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet. Therefore, to ensure compliance with Rule 2201 and the monitoring requirements of Rule 4702 the following conditions will be placed on the ATC:

- *If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas bills and supplier certifications for a period of five years. [District Rules 2201 and 4702]*

- *If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702]*

- *If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702]*

- *Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201]*

3. Recordkeeping

Recordkeeping is required to demonstrate compliance with the offset, public notification and daily emission limit requirements of Rule 2201. The following condition will be listed on this permit:

- *The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702]*

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

F. Ambient Air Quality Analysis (AAQA)

An AAQA shall be conducted to determine whether a new or modified Stationary Source will cause or make worse a violation of an air quality standard. The AAQA analysis is included in Appendix F.

The proposed location is in an attainment area for NO_x, CO, and SO_x. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for NO_x, CO, or SO_x.

The proposed location is in a non-attainment area for the state's PM_{10} as well as federal and state $PM_{2.5}$ thresholds. As shown by the AAQA summary sheet the proposed equipment will not cause a violation of an air quality standard for PM_{10} and $PM_{2.5}$.

G. Compliance Certification

Section 4.15.2 of this Rule requires the owner of a new Major Source or a source undergoing a Federal Major Modification to demonstrate to the satisfaction of the District that all other Major Sources owned by such person and operating in California are in compliance or are on a schedule for compliance with all applicable emission limitations and standards. As discussed in Section VIII above, this project does constitute a Federal Major Modification; therefore, this requirement is applicable. CRPC's compliance certification is included in Appendix C.

H. Alternate Siting Analysis

The current project occurs at an existing facility. The applicant proposes to install ten new field gas or LPG-fired IC engines.

Since the engines will provide power for equipment to be used at the same location, the existing site will result in the least possible impact from the project. Alternative sites would involve the relocation and/or construction of various support structures on a much greater scale, and would therefore result in a much greater impact.

I. Equivalent Equipment

The applicant has requested that the installation of an equivalent emissions unit be considered. Therefore, the following conditions will be listed on the permit:

- *The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201]*

- *The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201]*

- *Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201]*

- *No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201]*

Rule 2410 Prevention of Significant Deterioration

As shown in Section VII.C.9 above, this project does not result in a new PSD major source or PSD major modification. No further discussion is required.

Rule 2520 Federally Mandated Operating Permits

This facility is subject to this Rule, and has received their Title V Operating Permit. A significant permit modification is defined as a "permit amendment that does not qualify as a minor permit modification or administrative amendment."

The project is Federal Major Modification and therefore is also a Title V Significant Modification. As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Included in Appendix C is CRPC's Title V Compliance Certification form. Continued compliance with this rule is expected.

Rule 4001 New Source Performance Standards (NSPS)

40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Spark ignited engines, manufactured on or after July 1, 2008, with a maximum engine power less than 500 HP, are subject to the requirements of this subpart. Therefore, the subpart is applicable.

40 CFR 60.4233(e) requires owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) to comply with the emission standards in Table 1 to this subpart for their stationary SI ICE.

CRPC proposes the installation of non-certified SI ICEs equipped with NSCR for compliance with BACT standards, with the emission limits in Table 1 of this subpart and with 40 CFR 60.4243(g), including periodic NOx and CO emission monitoring (monthly portable analyzer monitoring) and biennial compliance demonstrations (source testing).

Compliance with the subpart is expected.

Rule 4002 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

This rule incorporates NESHAPs from Part 61, Chapter I, Subchapter C, Title 40, CFR and the NESHAPs from Part 63, Chapter I, Subchapter C, Title 40, CFR; and applies to all sources of hazardous air pollution listed in 40 CFR Part 61 or 40 CFR Part 63. However, no subparts of 40 CFR Part 61 or 40 CFR Part 63 apply to IC engines. Therefore, no further discussion is required.

Rule 4101 Visible Emissions

Rule 4101 states that no person shall discharge into the atmosphere emissions of any air contaminant aggregating more than 3 minutes in any hour which is as dark as or darker than Ringelmann 1 (or 20% opacity).

As the IC engines are fired solely on field gas or LPG, visible emissions are not expected to exceed Ringelmann 1 or 20% opacity. The following condition will be added to each permit to ensure compliance:

- *No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]*

Rule 4102 Nuisance

Rule 4102 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. The following condition will be added to each permit to ensure compliance:

- *No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]*

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – *Risk Management Policy for Permitting New and Modified Sources* specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

An HRA is not required for a project with a total facility prioritization score of less than one. According to the Technical Services Memo for this project (Appendix F), the total facility

prioritization score including this project was greater than one. Therefore, an HRA was required to determine the short-term acute and long-term chronic exposure from this project.

The cancer risk for this project is shown below:

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
532-0 to 541-0 (Each)	2.48	0.01	0.00	2.46E-07	No	Yes
Project Totals	2.48	0.10	0.00	2.46E-06		
Facility Totals	>1	0.87*	0.04*	16.9E-06*		

*Totals are from Oxy Risk Light Oil Western Stationary Source.Workbook

Discussion of T-BACT

BACT for toxic emission control (T-BACT) is required if the cancer risk exceeds one in one million. As demonstrated above, T-BACT is not required for this project because the HRA indicates that the risk is not above the District's thresholds for triggering T-BACT requirements; therefore, compliance with the District's Risk Management Policy is expected.

District policy APR 1905 also specifies that the increase in emissions associated with a proposed new source or modification not have acute or chronic indices, or a cancer risk greater than the District's significance levels (i.e. acute and/or chronic indices greater than 1 and a cancer risk greater than 20 in a million). As outlined by the HRA Summary in Appendix F of this report, the emissions increases for this project was determined to be less than significant.

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

- *The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]*
- *LPG usage may not exceed 500 hours a year. [District Rules 2201 and 4102]*
- *The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]*
- *The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]*

Rule 4201 Particulate Matter Concentration

Section 3.1 prohibits discharge of dust, fumes, or total particulate matter, into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

$$0.01 \quad \frac{g-PM_{10}}{bhp-hr} \times \frac{1g-PM}{0.96g-PM_{10}} \times \frac{1\,bhp-hr}{2{,}542.5\,Btu} \times \frac{10^6\,Btu}{8{,}578\,dscf} \times \frac{0.35\,Btu_{out}}{1\,Btu_{in}} \times \frac{15.43\,grain}{g} = \quad 0.003 \quad \frac{grain-PM}{dscf}$$

Since 0.003 grain-PM/dscf is ≤ to 0.1 grain per dscf, compliance with Rule 4201 is expected and the following condition will be added to the permit to ensure compliance:

- *{14} Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201]*

Rule 4701 Internal Combustion Engine – Phase 1

The purpose of this rule is to limit the emissions of nitrogen oxides (NO_x), carbon monoxide (CO), and volatile organic compounds (VOC) from internal combustion engines. Except as provided in Section 4.0, the provisions of this rule apply to any internal combustion engine, rated greater than 50 bhp, which requires a Permit to Operate (PTO).

There are ten field gas/LPG-fired IC engines included in this project. Pursuant to Section 2.0 of District Rule 4701, these engines are subject to District Rule 4701 - *Internal Combustion Engines – Phase 1*. In addition, the engines are also subject to District Rule 4702 - *Internal Combustion Engines*.

Since the emissions limits of District Rule 4702 and all other requirements are equivalent or more stringent than District Rule 4701 requirements, compliance with District Rule 4702 requirements will satisfy the requirements of District Rule 4701.

Therefore, the IC engines are expected to comply with District Rule 4701 requirements and no further discussion is required.

Rule 4702 Internal Combustion Engines

The purpose of this Rule is to limit NO_x, CO, and VOC emissions from internal combustion engines rates 25 bhp or greater.

The new spark-ignited internal combustion engines are rich-burn and are rated 215 bhp. Therefore, they are subject to the requirements of this rule.

Section 5.1 applies to non-agricultural engines rated between 25 and 50 bhp. The engine is rated greater than 50 bhp. Therefore, this section does not apply.

Section 5.2.1 states the operator of a spark-ignited IC engine rated greater than 50 bhp that is used exclusively in non-agricultural operations (AO) shall not operate it in such a manner that results in emissions exceeding the limits in Table 1 for the appropriate engine type until such time that the engine has demonstrated compliance with Table 2 emission limits pursuant to the compliance deadlines in Section 7.5.

The engines will comply with the emission limits specified in Table 2 (discussed below). Since the emissions limits in Table 2 are equal to or more stringent than the emission limits specified in Table 1, compliance with Table 2 emission limits will show compliance with Table 1 emission limits.

Section 5.2.2 states on and after the compliance schedule specified in Section 7.5, the operator of a spark-ignited engine > 50 bhp that is used in non-AO shall comply with all of the applicable requirements of the rule and one of the following, on an engine-by-engine basis:

5.2.2.1 On and after the compliance schedule specified in Section 7.5, the operator of a spark-ignited engine that is used exclusively in non-AO shall comply with the following requirements on an engine-by-engine basis:

- 5.2.2.1.1 NOx, CO, and VOC emission limits pursuant to Table 2;
- 5.2.2.1.2 SOx control requirements of Section 5.7, pursuant to the deadlines specified in Section 7.5; and
- 5.2.2.1.3 Monitoring requirements of Section 5.10, pursuant to the deadlines specified in Section 7.5.

5.2.2.2, 5.2.2.3 Emissions fee and alternative emission control plan requirements pursuant to Section 8.0 – not applicable.

Per the compliance schedules in Section 7.5, the earliest compliance date for an engine subject to Table 2 emission limits is January 1, 2014. However, the engines already meet the requirements listed in Section 5.2.2.1. Therefore, compliance with Section 5.2.2 and Table 2 emission limits will be shown.

Table 2. Rule 4702 Emission Limits

Engine Type	NOx Emission Limit (ppmv @ 15% O_2, dry)	CO Emission Limit (ppmv @ 15% O_2, dry)	VOC Emission Limit (ppmv @ 15% O_2, dry)
Rich-burn Engine, not listed above	11	2,000	250

The proposed emissions are 5 ppmv @3% NOx, 50 ppmv @ 3% CO, and 15 ppmv @ 3% VOCs. Therefore, compliance with Table 2 is expected.

Sections 5.2.3, 5.2.4, 5.2.5, and 5.3 apply to spark-ignited AO and CI engines and engines equipped with CEMs. Therefore, these sections do not apply.

Sections 5.4 and 5.5 pertain to engines using a percent emission reduction to comply with the NOx emission limits specified in Section 5.2. The ATCs include emission limits in lb/hr and ppmv @ 15% O_2; therefore, percent emission reduction is not being used. These sections of the rule do not apply.

Section 5.6 applies to operators who elect to pay an annual fee in lieu of complying with the NOx emission limit requirements of Section 5.2.2.1.1. The engines will comply with the NOx emission limit requirement of Section 5.2.2.1.1. Therefore, this section does not apply.

Section 5.7 states that on and after the compliance schedule specified in Section 7.5, operators of non-AO spark-ignited engines and non-AO compression-ignited engines shall comply with one of the following requirements:

5.7.1 Operate the engine exclusively on PUC-quality natural gas, commercial propane, butane, or liquefied petroleum gas, or a combination of such gases; or
5.7.2 Limit gaseous fuel sulfur content to no more than five (5) grains of total sulfur per one hundred (100) standard cubic feet; or
5.7.3 Use California Reformulated Gasoline for all gasoline-fired spark-ignited engines; or
5.7.4 Use California Reformulated Diesel for all compression-ignited engines; or
5.7.5 Operate the engine on liquid fuel that contains no more than 15 ppm sulfur, as determined by the test method specified in Section 6.4.6; or
5.7.6 Install and properly operate an emission control system that reduces SO2 emissions by at least 95% by weight as determined by the test method specified in Section 6.4.6.

The IC engines will combust gas containing no more than 3.0 grains of total sulfur per one hundred (100) standard cubic feet; therefore, the requirements of Section 5.7.2 are met.

Section 5.8 requires the operator with an engine equipped with an external control device to either install, operate, and maintain continuous monitoring equipment (CEMs) for NOx, CO, and oxygen, as identified in Rule 1080 (Stack Monitoring), or install, operate, and maintain APCO-approved alternate monitoring consisting of one or more of the following:

- Periodic NO_x and CO emission concentrations,
- Engine exhaust oxygen concentration,
- Air-to-fuel ratio,
- Flow rate of reducing agents added to engine exhaust,
- Catalyst inlet and exhaust temperature,
- Catalyst inlet and exhaust oxygen concentration,
- Other operational characteristics.

The engines will utilize periodic monitoring of emissions with a portable analyzer and will have the following conditions listed on the permit to ensure compliance:

- *The permittee shall monitor and record the stack concentration of NOx, CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. [In-stack O2 monitors may be allowed if approved by the APCO] Monitoring shall be performed not less than once every month for 12 months if 2 consecutive deviations are observed during quarterly monitoring. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5*

days of restarting the engine unless monitoring has been performed within the last month if on a monthly monitoring schedule, or within the last quarter if on a quarterly monitoring schedule. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701, and 4702]

- *{3786} If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rule 4702]*

- *{3787} All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702]*

Section 5.8.3 requires alternate monitoring system to be approved by APCO. Compliance with this requirement is expected.

Sections 5.8.4 and 5.8.5 apply to installed monitoring systems (CEMS). This section does not apply.

Section 5.8.6 requires that each engine shall have a non-resettable operating time meter.

Section 5.8.7 requires that, for the engine, the operator implement the Inspection and Monitoring (I&M) plan, if any, submitted to and approved by the APCO pursuant to Section 6.5.

Section 5.8.8 requires that, for the engine, the operator collect data through the I&M plan in a form approved by the APCO.

The following conditions will ensure compliance:

- *{3202} This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ]*

- *The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702]*

Section 5.8.9 requires that a portable NO_x analyzer be used to take NO_x emission readings to verify compliance with the emission requirements of Section 5.1 during each calendar quarter in which a source test is not performed. The data must be taken and reported as approved by the APCO. This requirement is identified in the alternate monitoring section above and by inclusion of the following ATC condition:

- *The permittee shall monitor and record the stack concentration of NOx (as NO_2), CO, and O2 at least once every calendar month (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701, and 4702]*

Section 5.9 includes the monitoring requirements for other engines not subject to Section 5.8 – therefore, this section is not applicable.

Section 5.10 includes the SOx emissions monitoring requirements, which are applicable after compliance deadline in Table 7.5.

Section 5.10.1 requires an annual fuel sulfur analysis, which is applicable after compliance deadline in Table 7.5.

Sections 5.10.2 and 5.10.3 are applicable only if SOx control device used, which it has not proposed. Therefore, this section does not apply.

Section 5.11 applies to PEERS; therefore, it is not applicable.

Section 6.1 requires the submission of an APCO-approvable emission control plan to satisfy the emission requirements of Section 5.2 and the compliance schedules of Section 7.0. The submission of this application satisfies this requirement.

Section 6.2.1 requires to maintain an operating log to demonstrate compliance with this rule. The following condition will satisfy this Section of the Rule:

- *The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ]*

Section 6.2.2 states that the data collected shall be maintained for at least five years, shall be readily available and made available to the APCO upon request. The following condition will satisfy this requirement:

- *All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702]*

Section 6.3 identifies the source testing requirements. Engines retrofitted with exhaust control devices must comply with Sections 6.3.2 through 6.3.4 (source testing frequency, under normal conditions, source test protocol). The engines are fitted with catalytic convertors. The following conditions will be listed on the permit to ensure compliance:

- *Source testing of the NOx, VOC and CO emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702]*

- *{3791} Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702]*

- *{3792} For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% O_2. [District Rule 4702]*

Section 6.3.5 applies to engines combusting PUC-quality gas only where reoccurring VOC testing is required. Since this engine will be using field gas and LPG as fuel, this section doesn't apply.

Section 6.3.6 (representative source testing) allows for representative source testing from an engine or engines that represents a specified group of engines, provided the necessary requirements are met. Representative source testing has not been proposed.

Section 6.4 specifies the required testing methods. The following conditions are listed on the permit to ensure compliance:

- *{3793} The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100, and VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702]*

- *{109} Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]*

- *{110} The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ]*

Section 6.5 requires that the operator of an engine subject to the requirements of Section 5.2 or the requirements of Section 8.0 shall submit to the APCO for approval an I&M plan that specifies all actions to be taken to satisfy the following requirements and the requirements of Section 5.8. The actions to be identified in the I&M plan shall include, but are not limited to, the requirements listed in Sections 6.5.2 through 6.5.9. If there is not change to the previously approved I&M plan, the operator shall submit a letter to the District indicating that previously approved plan is still valid.

Section 6.5.1 states the requirements of Section 6.5.2 through 6.5.9 shall apply to the following engines:

- Engines that have been retrofitted with an exhaust control device, except those certified per Section 9.0;
- Engines subject to Section 8.0;
- An AO spark-ignited engine that is subject to the requirements of Section 8.0;
- An AO spark-ignited engine that has been retrofitted with a catalytic emission control and is not subject to the requirements of Section 8.0.

The proposed engines have an exhaust control device. Therefore, Sections 6.5.2 through 6.5.9 apply.

Section 6.5.2 requires procedures for establishing ranges for control equipment parameters, engine operating parameters, and engine exhaust oxygen concentrations that source testing has shown result in pollutant concentrations within the rule limits.

Section 6.5.3 requires procedures for monthly inspections as approved by the APCO. The applicable control equipment parameters and engine operating parameters will be inspected and monitored weekly (proposed by the applicant) in conformance with a regular inspection schedule listed in the I&M plan. Such weekly inspection and monitoring of the control equipment and engine operating parameters will be accompanied by quarterly emissions monitoring as specified in the approved alternate monitoring plan.

Section 6.5.4 requires procedures for the corrective actions on the noncompliant parameter(s) that the owner or operator will take when an engine is found to be operating outside the acceptable range for control equipment parameters, engine operating parameters, and engine exhaust NOx, CO, VOC, or oxygen concentrations.

Section 6.5.5 requires procedures for the owner or operator to notify the APCO when an engine is found to be operating outside the acceptable range for control equipment parameters, engine operating parameters, and engine exhaust NOx, CO, VOC, or oxygen concentrations.

The alternate monitoring scheme proposed in Section 5.8.1 above will satisfy the requirements of Sections 6.5.2, 6.5.3, 6.5.4 and 6.5.5 of the rule. Therefore, compliance with Sections 6.5.2, 6.5.3, 6.5.4, and 6.5.5 is expected.

Section 6.5.6 requires procedures for preventive and corrective maintenance performed for the purpose of maintaining an engine in proper operating condition. The alternate monitoring procedure proposed in Section 5.6.1 above will satisfy the requirements of Section 6.5.6. Moreover, the applicant will operate and maintain engines according to the manufacturer's specifications:

- *This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702]*

Section 6.5.7 requires procedures and a schedule for using a portable NOx analyzer to take NOx emission readings pursuant to Section 5.8.9. This is cover in the I&M program.

Section 6.5.8 requires procedures for collecting and recording required data and other information in a form approved by the APCO including, but not limited to, data collected through the I&M plan and the monitoring systems described in Sections 5.8.1 and 5.8.2. Data collected through the I&M plan shall have retrieval capabilities as approved by the APCO.

The data collection and recordkeeping requirement described in Section 6.2.1 above will satisfy the requirements of Section 6.5.8.

Section 6.5.9 specifies procedures for revising the I&M plan. The owner of an engine may request a change to the I&M plan at any time. The I&M plan shall be updated to reflect any change in operation and prior to any planned change in operation. An engine owner that changes significant I&M plan elements must notify the District no later than seven days after the change and must submit an updated I&M plan to the APCO no later than 14 days after the change for approval. The date and time of the change to the I&M plan shall be recorded in the engine operating log. For new engines and modifications to existing engines, the I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit-to-Operate. Therefore, the following condition will be listed on the ATCs to ensure compliance with Section 6.5.9:

- *{3212} The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702]*

Section 7.0 describes compliance schedules.

Sections 7.1 and 7.2 are related to loss of exemption and permanent removal requirements, which are not applicable to this project.

Sections 7.3 and 7.4 apply to compression ignition engines, which is not applicable to this project.

Section 7.5 requires that non-AO spark ignited ICEs operate in compliance with the dates in Table 5 after the listed compliance dates.

Section 8.0 describes the Alternate Emissions Control Plan, which has not been proposed by the applicant.

Section 9.0 includes the Exhaust Control Certification Requirements – NSCR Certification, which has not been proposed by the applicant.

Compliance with Rule 4702 is expected.

Rule 4801 Sulfur Compounds

Rule 4801 requires that sulfur compound emissions (as SO_2) shall not exceed 0.2% by volume. Using the ideal gas equation, the sulfur compound emissions are calculated as follows:

Volume SO_2 = (n x R x T) ÷ P
n = moles SO_2
T (standard temperature) = 60 °F or 520 °R
R (universal gas constant) = $\frac{10.73\,\text{psi}\cdot\text{ft}^3}{\text{lb}\cdot\text{mol}\cdot{}^\circ\text{R}}$

Sulfur content of field gas: 3.0 gr/100 scf = 8.55 lbS/MMscf

$$8.55 \quad \frac{lb-S}{MMscf-gas}\times\frac{1\,scf-gas}{1{,}000\,Btu}\times\frac{1\,MMBtu}{8{,}578\,scf}\times\frac{1\,lb-mol}{64\,lb-S}\times\frac{10.73\,psi-ft^3}{lb-mol-{}^\circ R}\times\frac{520^\circ R}{14.7\,psi}\times 1{,}000{,}000 = \quad 5.91 \quad \text{ppmv}$$

Since 5.91 ppmv is ≤ 2,000 ppmv, these engines are expected to comply with Rule 4801. Therefore, the following condition (previously proposed in this engineering evaluation) will be listed on the ATC to ensure compliance:

- *The engine shall be fired only on LPG or field gas with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801]*

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Greenhouse Gas (GHG) Significance Determination

District is a Responsible Agency

Oil and gas operations in Kern County must comply with the *Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting*. In 2015, Kern County revised the Kern County Zoning Ordinance Focused on Oil and Gas Activities (Kern Oil and Gas Zoning Ordinance) in regards to future oil and gas exploration, and drilling and production of hydrocarbon resource projects occurring within Kern County.

Kern County served as lead agency for the revision to their ordinance under the California Environmental Quality Act (CEQA), and prepared an Environmental Impact Report (EIR) that was certified on November 9, 2015. The EIR evaluated and disclosed to the public the environmental impacts associated with the growth of oil and gas exploration in Kern County, and determined that such growth will result in significant GHG impacts in the San Joaquin Valley. As such, the EIR included mitigation measures for GHG.

The District is a Responsible Agency for the project because of its discretionary approval power over the project via its Permits Rule (Rule 2010) and New Source Review Rule (Rule 2201), (CEQA Guidelines §15381). As a Responsible Agency, the District is limited to mitigating or avoiding impacts for which it has statutory authority. The District does not have statutory authority for regulating GHGs. The District has determined that the applicant is responsible for implementing GHG mitigation measures imposed in the EIR by the Kern County for the Kern County Zoning Ordinance.

District CEQA Findings

The proposed project is located in Kern County and is thus subject to the Kern County Zoning Ordinance – 2015 (C) Focused on Oil and Gas Local Permitting. The Kern County Zoning Ordinance was developed by the Kern County Planning Agency as a comprehensive set of goals, objectives, policies, and standards to guide development, expansion, and operation of oil and gas exploration within Kern County.

In 2015, Kern County revised their *Kern County Zoning Ordinance* in regards to exploration, drilling and production of hydrocarbon resources projects. Kern County, as the lead agency, is the agency that will enforce the mitigation measures identified the EIR, including the mitigation requirements of the Oil and Gas ERA. As a responsible agency the District complies with CEQA by considering the EIR prepared by the Lead Agency, and by reaching its own conclusion on whether and how to approve the project involved (CCR §15096). The District has reviewed the EIR prepared by Kern County, the Lead Agency for the project, and finds it to be adequate. The District also prepared a full findings document. The full findings document, *California Environmental Quality Act (CEQA) Statement of Findings for the Kern County Zoning Ordinance EIR* contains the details of the District's findings regarding the Project. The District's implementation of the Kern Zoning Ordinance and its EIR applies to ATC applications received for any new/modified equipment used in oil/gas production in Kern County, including new wells. The full findings applies to the Project and the Project's related activity equipment(s) is covered under the Kern Zoning Ordinance. To reduce project related impacts on air quality, the District evaluates emission controls for the project such as Best Available Control Technology (BACT) under District Rule 2201 (New and Modified Stationary Source Review). In addition, the District is requiring the applicant to surrender emission reduction credits (ERC) for stationary source emissions above the offset threshold.

Thus, the District concludes that through a combination of project design elements, permit conditions, and the Oil and Gas ERA, the project will be fully mitigated to result in no net increase in emissions. Pursuant to CCR §15096, prior to project approval and issuance of ATCs the District prepared findings.

Indemnification Agreement/Letter of Credit Determination

According to District Policy APR 2010 (CEQA Implementation Policy), when the District is the Lead or Responsible Agency for CEQA purposes, an indemnification agreement and/or a letter of credit may be required. The decision to require an indemnity agreement and/or a letter of credit is based on a case-by-case analysis of a particular project's potential for litigation risk, which in turn may be based on a project's potential to generate public concern, its potential for significant impacts, and the project proponent's ability to pay for the costs of litigation without a letter of credit, among other factors.

The revision to the *Kern County Zoning Ordinance* went through an extensive public process that included a Notice of Preparation, a preparation of an EIR, scoping meetings, and public hearings. The process led to the certification of the final EIR and approval of the revised *Kern County Zoning Ordinance* in November 2015 by the Kern County Board of Supervisors. As mentioned above, the proposed project will be fully mitigated and will

result in no net increase in emissions. In addition, the proposed project is not located at a facility of concern; therefore, an Indemnification Agreement and/or a Letter of Credit will not be required for this project in the absence of expressed public concern.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Pending a successful NSR Public Noticing period, issue the ATCs S-1738-532 through '-541, subject to the permit conditions on the attached draft ATCs in **Appendix G**.

X. Billing Information

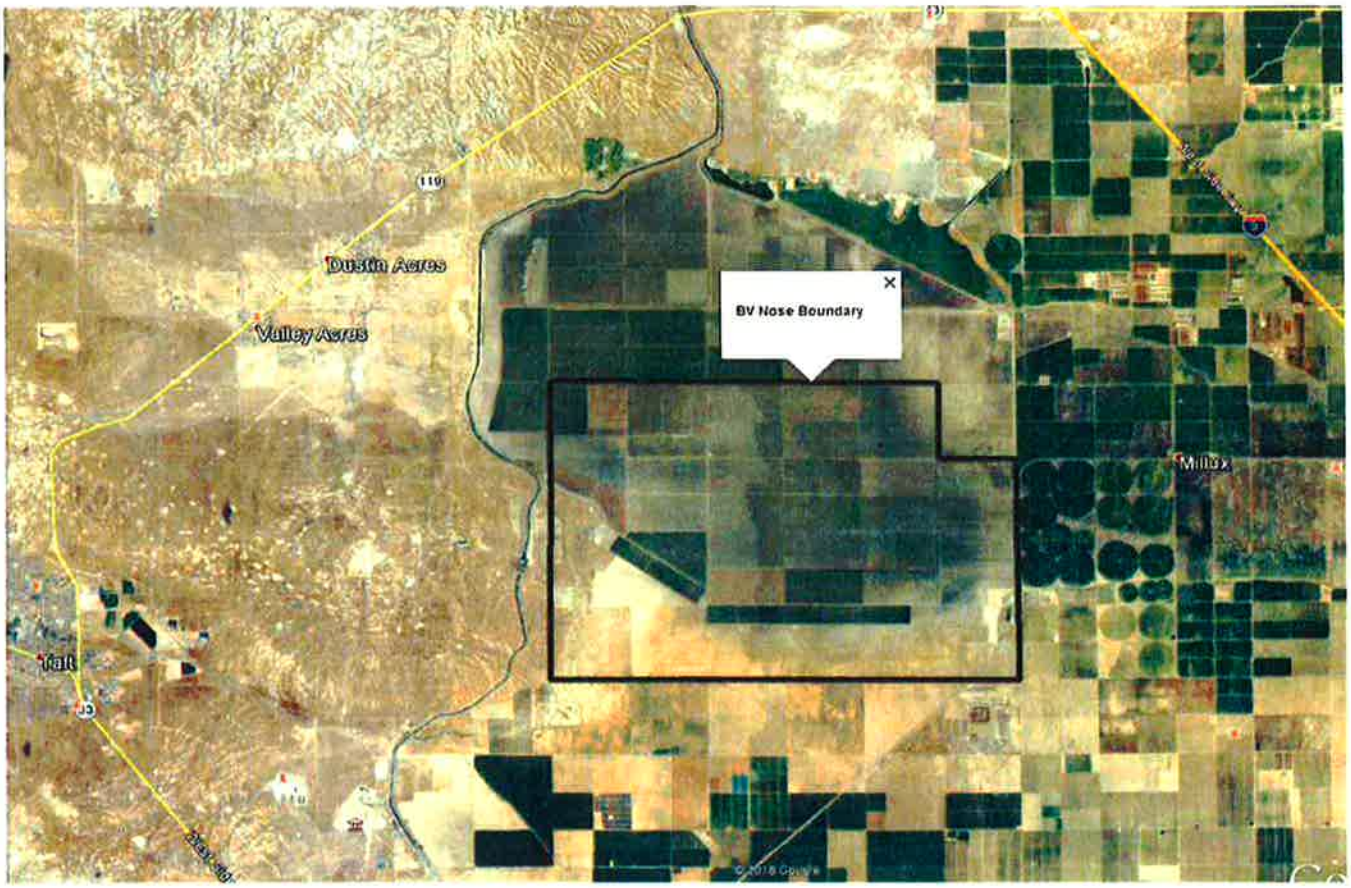
Annual Permit Fees			
Permit Number	**Fee Schedule**	**Fee Description**	**Annual Fee**
For each ATC	3020-10 C	215 bhp IC engine	$277

Appendices

A: Location Map
B: Manufacturer's datasheet
C: Statewide Compliance Statement and Title V Compliance Certification Form
D: QNEC Calculations & Emissions Profile
E: BACT Guideline & Top-down BACT Analysis
F: HRA Summary/AAQA
G: Draft ATCs

Appendix A:
Location Map

Buena Vista Nose Source Boundary



Appendix B:
Manufacturer's Datasheet

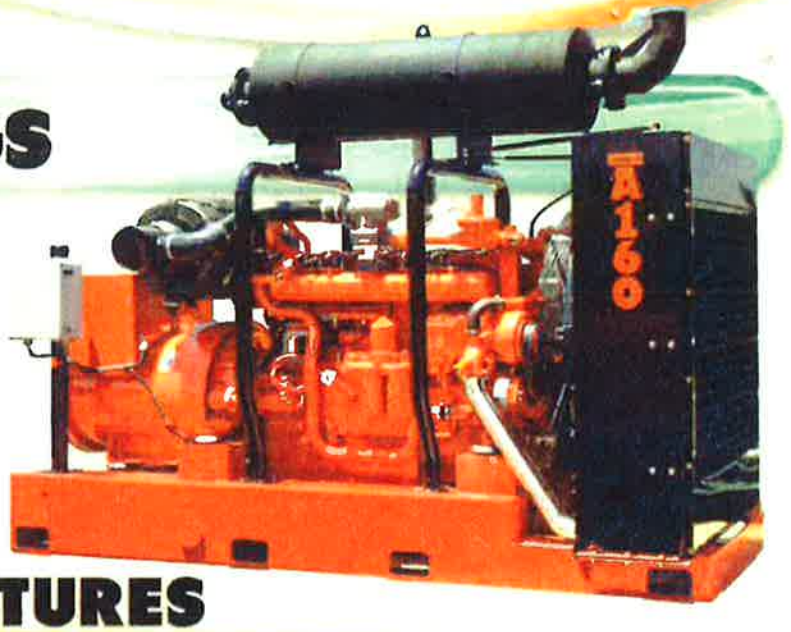
A160

ARROW ENGINE COMPANY

GENSET RATINGS

GENSET RATINGS		kW
Standby Power	1800 rpm	161
	1500 rpm	142
Prime Power	1800 rpm	147
	1500 rpm	128

Note: kW rated with 1000 BTU Fuel.
Rated 3-phase 480 volts.
Preliminary power ratings.



APPLICATIONS

- Prime power for facilities
- Backup power
- Emergency power
- Electricity for remote locations
- Compressor power
- Irrigation power
- Hydraulics power

FEATURES

- Engine, generator, and radiator, are mounted and aligned on a channel steel base suitable for lifting.
- Standard front mount radiator with pusher fan. For other options and details consult Arrow Engine.
- Control Panel: pole mounted. NEMA 12 weather protected. 3.5" panel type 2% accuracy, voltmeter, ammeter, frequency meter, hourmeter and combination voltmeter/ammeter switch. Engine instruments and controls rear mounted for easy accessibility.
- Generator: direct connected, fan cooled, A.C. revolving field type, single bearing generator, with brushless exciter and damper windings. Twelve lead broad range voltage, reconnectable, 60HZ/50HZ. Insulation material Nema class H to F temperature rise within Nema (105°C) for prime power duty, within Nema (130°C) for continuous standby duty. All generators are rated at 0.8 power factor, are mounted on the engine flywheel housing and have multiple steel disc flexible coupling drive.

POWER RATINGS

I = Intermittent C = Continuous

PEAK INTERMITTENT	BRAKE HORSEPOWER AT SPEEDS INDICATED							
TORQUE @ RPM	1200		1400		1600		1800	
FT-LB	I	C	I	C	I	C	I	C
809 @ 1200	184	166	199	179	215	194	236	215

NOTE: Includes Parasitic Loads (Fan, Water Pump, Alternator)

Arrow Engine Company
2301 East Independence, Tulsa, Oklahoma 74110
www.ArrowEngine.com
toll free (800) 331-3662 local (918) 583-5711
toll free fax in US & Canada (800) 266-1481 • local fax (918) 583-3202

A160 GENSET

ARROW ENGINES™

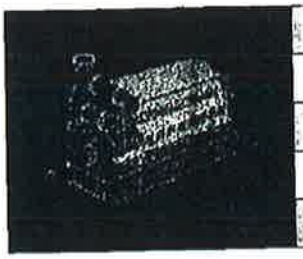
TECHNICAL SPECIFICATIONS

Configuration	4-stroke	6-cylinder (inline)
Bore x Stroke	150 X 150 mm	
Engine Displacement	15.9 L 970 CID	
Compression Ratio	10:1	
Complete Power Unit Wet Weight (with Radiator)	8000 lbs	
Firing Order	1-5-3-6-2-4	
Natural Gas Fuel Pressure Requirements	4-8 psi to engine regulator	
Rotation	Counter clockwise (facing the flywheel)	
Aspiration	NA (Naturally Aspirated)	
Air Filter	Dry	
Battery Charging System	24V	63 amp
Rated Power Max Output with Fan at 1800 rpm	**236 BHP**	
Continuous Power Rating with Fan at 1800 rpm	215 BHP	
Governor Type	GAC	
Flywheel Housing Size	SAE 1	
Oil Change Capacity with Filters	52-55 quarts	
Coolant Capacity with Radiator	33 gallons	50/50 coolant mix
Liquid Cooled Exhaust Manifold	Included	

Arrow Engine Company
2301 East Independence, Tulsa, Oklahoma 74110
www.ArrowEngine.com
toll free (800) 331-3662 local (918) 583-5711
toll free fax in US & Canada (800) 266-1481 • local fax (918) 366-3198

PROJECT OVERVIEW

ENGINE DATA



Engine Model	Arrow A160
Power	215 bhp
Fuel	PQNG
Exhaust Flow Rate	1,052 acfm
Exhaust Temperature	1,238° F

CATALYST DATA

Catalyst Model	3-DC48-5/6 IGS
Type	NSCR, Elite
# of Elements	3
Cell Density	300 cpsi
Approx. Dimensions	See Drawing
Approx. Weight	200 lbs
Approx. Pressure Drop	11.2" w.c.
Connection Size	5" Inlet, 6" outlet

EMISSION REQUIREMENTS

Exhaust Component	Engine Output (g/bhp-hr)	Converter Output (ppmvd @15%O_2)
NOx	11.2	5
CO	9.2	50
VOC	0.12	15
CHOH	>95% Reduction	

The catalyst model selection is based upon the reduction requirements above. Any variance in these requirements may affect the price and model required.

DCL America Inc. 27603 Commerce Oaks Drive, Oak Ridge North, TX 77385
Toll free: 1-877-965-8989 **Fax:** 281-605-5858 **Email:** info@dcl-inc.com **www.dcl-inc.com**

Appendix C:

Statewide Compliance Statement & Title V Compliance Certification Form

CALIFORNIA
RESOURCES CORPORATION

January 26, 2018

San Joaquin Valley Air Pollution Control District
Attn: Leonard Scandura
Permit Services Manager
34969 Flyover Ct
Bakersfield, CA 93308

Subject: California Resources Production Corporation - Certification of Compliance

Dear Mr. Scandura:

Rule 2201 section 4.15.2 requires that an owner or operator proposing a federal major modification certify that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in California are either in compliance or an a schedule for compliance with all applicable emission limitations and standards. This letter certifies compliance for California Resources Production Corporation (CRPC) and its affiliates.

CRPC has Notices of Violation outstanding issued by your office. However, all issues associated with the Notices of Violation have been addressed. Affiliated companies of CRPC own interests in or own and/or operate other major stationary sources in California. These major stationary sources are currently in compliance with applicable compliance schedules (if any) and substantially comply with all applicable laws and regulations.

This certification is made on information and belief and is based upon a review of CRPC and affiliated company major stationary sources in the State of California by employees of CRPC and its affiliates who have responsibility for compliance with environmental requirements.

This certification is as of the date of its execution.

Sincerely,

Jim Robinson
VP, HSE

cc: Raymond Rodriguez, Environmental Manager-North CRC

San Joaquin Valley
Unified Air Pollution Control District

TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM

I. TYPE OF PERMIT ACTION (Check appropriate box)

☒ SIGNIFICANT PERMIT MODIFICATION
☐ MINOR PERMIT MODIFICATION
☐ ADMINISTRATIVE AMENDMENT

COMPANY NAME: California Resources Production Corporation	FACILITY ID: S-1738
1. Type of Organization: ☒ Corporation ☐ Sole Ownership ☐ Government ☐ Partnership ☐ Utility	
2. Owner's Name:	
3. Agent to the Owner:	

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial **all** circles for confirmation):

(RM) Based on information and belief formed after reasonable inquiry, the equipment identified in this application will continue to comply with the applicable federal requirement(s).

(RM) Based on information and belief formed after reasonable inquiry, the equipment identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

(RM) Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

(RM) Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

(RM) Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:

Signature of Responsible Official — 17 Jul 2018 — Date

Raymond Rodriguez

Name of Responsible Official (please print)

Director Environmental

Title of Responsible Official (please print)

ATC Application for 10 IC Engines

Appendix D:
QNEC Calculations & Emissions Profile

Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

QNEC = PE2 - PE1, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.
PE2 = Post Project Potential to Emit for each emissions unit, lb/qtr.
PE1 = Pre-Project Potential to Emit for each emissions unit, lb/qtr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

$PE2_{quarterly} = PE2_{annual} \div 4$ quarters/year

$PE1_{quarterly} = PE1_{annual} \div 4$ quarters/year

Quarterly NEC [QNEC] (Each ATC)					
	PE2 (lb/yr)	PE2 (lb/qtr)	PE1 (lb/yr)	PE1 (lb/qtr)	QNEC (lb/qtr)
NOx	249	62	0	0	62
SOx	116	29	0	0	29
PM_{10}	42	11	0	0	11
CO	1,511	378	0	0	378
VOC	257	64	0	0	64

Application Emissions

Permit #: S-1738-532-0	**Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION	08/22/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-533-0	Last Updated
Facility: CALIFORNIA RESOURCES PRODUCTION	08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-534-0 **Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION 08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-535-0 **Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION 08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-536-0	**Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION	08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-537-0	**Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION	08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-538-0 **Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION 08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	64.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-539-0 **Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION 08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-540-0	Last Updated
Facility: CALIFORNIA RESOURCES PRODUCTION	08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Application Emissions

Permit #: S-1738-541-0 **Last Updated**
Facility: CALIFORNIA RESOURCES PRODUCTION 08/24/2018 PROCOPIS

Equipment Pre-Baselined: NO

	NOX	SOX	PM10	CO	VOC
Potential to Emit (lb/Yr):	249.0	116.0	42.0	1511.0	257.0
Daily Emis. Limit (lb/Day)	0.7	0.3	0.1	4.1	0.7
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	62.0	29.0	10.0	377.0	64.0
Q2:	62.0	29.0	10.0	378.0	64.0
Q3:	62.0	29.0	11.0	378.0	64.0
Q4:	63.0	29.0	11.0	378.0	65.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio	1.5				1.5
Quarterly Offset Amounts (lb/Qtr)					
Q1:	93.0				96.0
Q2:	93.0				96.0
Q3:	94.0				97.0
Q4:	94.0				97.0

Appendix E:

BACT Guideline
& Top-down BACT Analysis

San Joaquin Valley
Unified Air Pollution Control District

Best Available Control Technology (BACT) Guideline 3.3.12*

Last Update: 03/19/2015

Non-Agricultural Fossil** Fuel-Fired IC Engines > 50 bhp

Pollutant	Achieved in Practice or contained in the SIP	Technologically Feasible	Alternate Basic Equipment
VOC	1. For all compression-ignited engines: Use of an engine meeting the latest Tier standard 2. For all spark-ignited engines: 25 ppmvd @ 15% O2 or 0.15 g/bhp-hr	1. For all compression-ignited engines: 50 percent reduction of latest Tier standard for VOC emissions using a catalytic oxidation system. 2. For rich-burn spark-ignited engines: 12 ppmvd @ 15% O2 or 0.069 g/bhp-hr	Electric Motor (except for engines that will be used to generate electricity)
SOx	Compliance with District Rule 4702 SOx Emission Control Requirements		Electric Motor (except for engines that will be used to generate electricity)
PM10	0.06 g/bhp-hr (Total PM)***		Electric Motor (except for engines that will be used to generate electricity)
NOx	0.07 g/bhp-hr or 5 ppmvd @ 15% O2		1. 2 ppmvd @ 15% O2 Natural Gas-Fired Turbine 2. Electric Motor (except for engines that will be used to generate electricity)
CO	1. For compression-ignited engines > 300 bhp and < or = 500 bhp: 49 ppmvd @ 15% O2 2. For compression-ignited engines > 500 bhp: 23 ppmvd @ 15% O2 3. For four stroke lean burn spark-ignited engines > 500 bhp: 47 ppmvd @ 15% O2 4. For all engines rated > or = 2,064 bhp: 33 pmvd @ 15% O2 5. For all other engines (not included in categroies 1 through 4 above): 56 ppmvd @ 15% O2 or 0.6 g/bhp-hr	For all compression-ignited engines: 12 ppmvd @ 15% O2 using an oxidation catalyst	Electric Motor (except for engines that will be used to generate electricity)

** For the purposes of this determination, fossil fuels includes diesel, gasoline, natural gas, propane, kerosene, and similar hydrocarbon compounds derived from petroleum oil or natural gas. Fossil fuels also include similar synthetic fuels such as biodiesel and/or any fuel containing one or more fossil fuels.

***This total PM10 emission limit is based on EPA Method 5 (front half and back half) testing, which typically yields results as much as four times higher than when using the ISO 8178 Test Method. The ISO 8178 Test Method only reports filterable (i.e. front half) emissions.

BACT is the most stringent control technique for the emissions unit and class of source. Control techniques that are not achieved in practice or contained in s a state implementation plan must be cost effective as well as feasible. Economic analysis to demonstrate cost effectiveness is required for all determinations that are not achieved in practice or contained in an EPA approved State Implementation Plan.

***This is a Summary Page for this Class of Source**

Top-Down BACT Analysis

BACT Guideline 3.3.12 applies to Non-agricultural Fossil Fuel-Fired IC Engines > 50 hp.

NOx Emissions

Step 1 – Identify All Control Technologies

- 5 ppmvd NOx @ 15% O_2 or 0.07 g/bhp-hr, as Achieved-in-Practice.
- Use of a natural gas-fired turbine with a NOx emission rate of 2 ppmvd @ 15% O_2, as Alternate Basic Equipment
- Electric Motor (except for engines that will be used to generate electricity) as Alternate Basic Equipment

Step 2 – Eliminate Technologically Infeasible Options

The alternate basic equipment option, the use of gas turbines meeting 2 ppmv NOx, was intended for projects with 3 MW of electrical output, or greater. Turbines smaller than 3 MW are typically not capable of meeting a 2 ppmv NOx emission limit. Therefore, no NOx emission reductions are expected if the electrical output from the unit is less than 3 MW. The proposed engines will have an electrical output of approximately 0.15 MW each. Therefore, the gas turbine option is not expected to result in lower emissions and will be eliminated from consideration for this project.

The well pumping sites where the proposed engines will be used do not currently have supplied electricity; therefore, electric motors are not feasible. This option is eliminated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

- 5 ppmv NOx @ 15% O_2 or 0.07 g/bhp-hr.

Step 4 – Cost Effectiveness Analysis

The applicant is proposing the only control technology from Step 3 above. Therefore, no cost-effectiveness analysis is required.

Step 5 – Select BACT

BACT for the engine is an emission limit of 5 ppmv NOx @ 15% O_2 or 0.07 g/bhp-hr.

CO Emissions

Step 1 – Identify All Control Technologies

- 56 ppmv @ 15% O_2 or 0.6 g/bhp-hr, as Achieved in Practice
- Electric Motor (except for engines that will be used to generate electricity), as Alternate Basic Equipment

Step 2 – Eliminate Technologically Infeasible Options

The well pumping sites where the proposed engines will be used do not have supplied electricity; therefore, electric motors are not feasible. This option is eliminated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

- 56 ppmv @ 15% O2 or 0.6 g/bhp-hr

Step 4 – Cost Effectiveness Analysis

The applicant is proposing the only control technology from Step 3 above. Therefore, no cost-effectiveness analysis is required.

Step 5 – Select BACT

BACT for the engine is an emission limit of 56 ppmv @ 15% O2 or 0.6 g/bhp-hr.

VOC Emissions

Step 1 – Identify All Control Technologies

- 25 ppmv VOC @ 15% O_2 or 0.15 g/bhp-hr, as Achieved-in-Practice
- 12 ppmv @ 15% O2 or 0.069 g/bhp-hr, as Technologically Feasible
- Electric Motor (except for engines that will be used to generate electricity), as Alternate Basic Equipment

Step 2 – Eliminate Technologically Infeasible Options

The well pumping sites where the proposed engines will be used do not have supplied electricity; therefore, electric motors are not feasible. This option is eliminated.

Step 3 – Rank Remaining Control Technologies by Control Effectiveness

a) 12 ppmv VOC @ 15% O_2
b) 25 ppmv VOC @ 15% O_2

Step 4 – Cost Effectiveness Analysis

Installation of an oxidation/VOC catalyst would be required to achieve 12 ppmv-VOC @ 15% O2. To install a 12 ppmv-VOC @15% O2 catalytic oxidation system, N-pentane and N-butane would need to be removed from the fuel gas. To accomplish this an additional gas compressor, a refrigeration skid, instrumentation, PLCs, piping, and mechanical construction would be required. However, to meet the Technologically Feasible BACT, CRPC would need to spend approximately $1.3 million on the refrigeration skid and supporting equipment, and an additional $25,000 per year on operational and maintenance costs. Detailed costs are included in the table below.

The annual amount of VOC reduced is calculated below.

Industry standard VOC emissions: 25 ppmv @ 15% O2 (0.15 g/bhp-hr)
Technologically Feasible VOC emissions: 12 ppmv @ 15% O2 (0.069 g/bhp-hr)

[(0.15– 0.069) g/hp-hr x 215 hp x 8760 hr/yr] / (453.6 g/lb x 2000 lb/ton) = 0.17 ton/yr

Based on the below capital and operational costs and a reduction of 1 ton/yr, as calculated above, the cost effectiveness of the Technologically Feasible BACT is $ 1,406,655 per ton, which exceeds the District's threshold of $17,500 per ton.

BACT Cost Effectiveness Worksheet

Capital Costs (P) to be financed (supplied by applicar	$1,313,794.06	(1)	Estimated
Interest rate for financing (assume 10%)	0.10	(i)	
time period of financing (assume 10 years)	10	(n)	
annualization factor = $i(1+i)^n$	0.16	(2)	
annualized capital costs [Calculated as (1) X (2)]	$214,131.29	(3)	
annual cost of operation and maintenance	$25,000.00	(4)	
total cost of control technology [(3) + (4)]	$239,131.29	(5)	
tons/year reduced by control technology being analy	1.00	(6)	Difference in VOC from 25 to 12 ppm
cost effectiveness ($/ton) [(5) / (6)]	$239,131.29	(7)	

Pollutant	Cost Effectiveness Threshold
VOC	$ 17,500.00

California Resources Corporation
BV Nose Field Development
10H Gas Dehydration Skid Installation
Class 4 - Cost Estimate

6-Feb-17 Rev A

	Description	Qty	Unit	Equip /Mat [US$]	Labor [US$]	Total [US$]
1	***ENGINEERING***					$ 91,416.46
	Mechanical & Civil Engineering	1	Lot	$ -	$ 55,094.74	$ 55,094.74
	Electrical & Automation Engineering	1	Lot	$ -	$ 36,321.72	$ 36,321.72
2	***HES & PERMITS***					$ -
	Air Permit	1	EA		$ -	$ -
	GHG & ERCs	1	Lot			$ -
	County Permits	2	EA		$	$ -
3	***PROCUREMENT***					$ 602,003.00
	Gas Compressor	2	EA	$ 240,000.00		$ 240,000.00
	Refrigeration Skid	1	EA	$ 250,000.00	$ -	$ 250,000.00
	Instruments	1	Lot	$ 42,000.00	$ -	$ 42,000.00
	PLC	1	EA	$ 30,000.00	$ -	$ 30,000.00
	Bulk Materials - Mechanical	1	Lot	$ 25,000.00	$ 1.00	$ 25,001.00
	Bulk Materials - Electrical	1	Lot	$ 15,000.00	$ 2.00	$ 15,002.00
4	***CONSTRUCTION***					$ 393,270.00
	Set Equipment, Structural & Civil	1	Lot	$ -	$ 60,270.00	$ 60,270.00
	Piping & Mechanical Contruction	1	Lot	$ -	$ 200,900.00	$ 200,900.00
	Electrical Construction	1	Lot	$	$ 102,900.00	$ 102,900.00
	Automation & Programming	1	Lot	$ -	$ 29,200.00	$ 29,200.00
5	***COMMISSIONING & START-UP***					$ 25,000.00
	Commissioning & Start-up	1	Lot	$ -	$ 15,000.00	$ 15,000.00
	Vendor Support	1	Lot	$ -	$ 10,000.00	$ 10,000.00
6	***CONTINGENCY (20%)***	1	Lot	$ 120,400.00	$ 83,654.60	$ 204,054.60
	CLASS 4 - TOTAL INSTALLED COST			$ 722,400.00	$ 593,344.06	$ 1,315,744.06
	INSTALL ONLY WITHOUT EQUIPMENT COSTS					$ 713,741.06

Step 5 – Select BACT

BACT for the engine is an emission limit of 25 ppmv VOC @ 15% O_2 or 0.15 g/bhp-hr.

Appendix F:
HRA Summary/AAQA

San Joaquin Valley Air Pollution Control District
Risk Management Review and Ambient Air Quality Analysis

To:	Silvana Procopio – Permit Services
From:	Will J Worthley – Technical Services
Date:	August 20, 2018
Facility Name:	CALIFORNIA RESOURCES PRODUCTION CORP
Location:	LIGHT OIL WESTERN STATIONARY SOURCE, KERN COUNTY,
Application #(s):	S-1738-532-0, -533-0, -534-0, -535-0, -536-0, -537-0, -538-0, -539-0, -540-0, -541-0
Project #:	S-1183082

1. SUMMARY

1.1 RMR

Units	Prioritization Score	Acute Hazard Index	Chronic Hazard Index	Maximum Individual Cancer Risk	T-BACT Required	Special Permit Requirements
532-0 to 541-0 (Each)	2.48	0.01	0.00	2.46E-07	No	Yes
Project Totals	2.48	0.10	0.00	2.46E-06		
Facility Totals	>1	0.87*	0.04*	16.9E-06*		

*Totals are from Oxy Risk-Light Oil Western Statiionary Source.Workbook

1.2 AAQA

Pollutant	Air Quality Standard (State/Federal)				
	1 Hour	3 Hours	8 Hours	24 Hours	Annual
CO	Pass		Pass		
NO_x	Pass				Pass[2]
SO_x	Pass	Pass		Pass	Pass[2]
PM10				Pass	Pass[3]
PM2.5				Pass	Pass[4]

Notes:
1. Results were taken from the attached AAQA Report.
2. The criteria pollutants are below EPA's level of significance as found in 40 CFR Part 51.165 (b)(2) unless otherwise noted below.
3. Modeled PM10 concentrations were below the District SIL for non-fugitive sources of 5 $\mu g/m^3$ for the 24-hour average concentration and 1 $\mu g/m^3$ for the annual concentration.
4. Modeled PM2.5 concentrations were below the District SIL for non-fugitive sources of 1.2 $\mu g/m^3$ for the 24-hour average concentration and 0.2 $\mu g/m^3$ for the annual concentration.

1.3 Proposed Permit Requirements

To ensure that human health risks will not exceed District allowable levels; the following shall be included as requirements for:

Unit # 532-0 to 541-0 (Each)

1. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction.

2. LPG usage may not exceed 500 hours a year.
3. Engines may only operate in the Buena Vista Nose lease.
4. Engines must operate at least 815 meters from the nearest receptor or boundary.

2. Project Description

Technical Services received a request on July 25, 2018 to perform a Risk Management Review (RMR) and Ambient Air Quality Analysis (AAQA) for the following:

- Unit -532-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -533-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -534-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -535-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -536-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -537-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -538-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -539-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

These emissions were input into the San Joaquin Valley APCD's Hazard Assessment and Reporting Program (SHARP). In accordance with the District's Risk Management Policy, risks from the proposed unit's toxic emissions were prioritized using the procedure in the 2016 CAPCOA Facility Prioritization Guidelines. The prioritization score for this proposed facility was greater than 1.0 (see RMR Summary Table). Therefore, a refined health risk assessment was required.

The AERMOD model was used, with the parameters outlined below and meteorological data for Connor from 2013-2017 to determine the dispersion factors (i.e., the predicted concentration or X divided by the normalized source strength or Q) for a receptor grid. These dispersion factors were input into the SHARP Program, which then used the Air Dispersion Modeling and Risk Tool (ADMRT) of the Hot Spots Analysis and Reporting Program Version 2 (HARP 2) to calculate the chronic and acute hazard indices and the carcinogenic risk for the project.

The following parameters were used for the review:

Source Process Rates

Unit ID	Process ID	Process Material	Process Units	Hourly Process Rate	Annual Process Rate
532-0 to 541-0 (Each)	1	NG Usage Rate	MMscf	0.0016	12.901
532-0 to 541-0 (Each)	1	LPG Usage Rate	1000 Gallons	0.017	8.31

Point Source Parameters

Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
532-0 to 541-0	215 BHP NG/LPG Engines (Each)	3.66	943	61.24	0.10	Vertical

4. AAQA Report

The District modeled the impact of the proposed project on the National Ambient Air Quality Standard (NAAQS) and/or California Ambient Air Quality Standard (CAAQS) in accordance with District Policy APR-1925 (Policy for District Rule 2201 AAQA Modeling) and EPA's Guideline for Air Quality Modeling (Appendix W of 40 CFR Part 51). The District uses a progressive three level approach to perform AAQAs. The first level (Level 1) uses a very conservative approach. If this analysis indicates a likely exceedance of an AAQS or Significant Impact Level (SIL), the analysis proceeds to the second level (Level 2) which implements a more refined approach. For the 1-hour NO_2 standard, there is also a third level that can be implemented if the Level 2 analysis indicates a likely exceedance of an AAQS or SIL.

The modeling analyses predicts the maximum air quality impacts using the appropriate emissions for each standard's averaging period. Required model inputs for a refined AAQA include background ambient air quality data, land characteristics, meteorological inputs, a receptor grid, and source parameters including emissions. These inputs are described in the sections that follow.

- Unit -540-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR
- Unit -541-0: 215 BHP ARROW MODEL A160 (OR EQ) RICH BURN NG/LPG/PROPANE-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

3. RMR REPORT

3.1 Analysis

The District performed an analysis pursuant to the District's Risk Management Policy for Permitting New and Modified Sources (APR 1905, May 28, 2015) to determine the possible cancer and non-cancer health impact to the nearest resident or worksite. This policy requires that an assessment be performed on a unit by unit basis, project basis, and on a facility-wide basis. If a preliminary prioritization analysis demonstrates that:

- A unit's prioritization score is less than the District's significance threshold and;
- The project's prioritization score is less than the District's significance threshold and;
- The facility's total prioritization score is less than the District's significance threshold

Then, generally no further analysis is required.

The District's significant prioritization score threshold is defined as being equal to or greater than1.0. If a preliminary analysis demonstrates that either the unit(s) or the project's or the facility's total prioritization score is greater than the District threshold, a screening or a refined assessment is required

If a refined assessment is greater than one in a million but less than 20 in one million for carcinogenic impacts (Cancer Risk) and less than 1.0 for the Acute and Chronic hazard indices(Non-Carcinogenic) on a unit by unit basis, project basis and on a facility-wide basis the proposed application is considered less than significant. For unit's that exceed a cancer risk of 1 in one million, Toxic Best Available Control Technology (TBACT) must be implemented.

Toxic emissions for this project were calculated using the following methods:

- Toxic emissions for this proposed unit were calculated using 2000 AP42 emission factors for Natural Gas Fired internal combustion 4 Stroke Rich Burn Engine and the Districts approved conversion factors from Natural Gas to LPG.
- Toxic emissions for this proposed unit were calculated using 2000 AP42 emission factors for Natural Gas Fired internal combustion 4 Stroke Rich Burn Engine . (The use of a catalyst reduces TACs by 76% (NESHAP).

million. **In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).**

To ensure that human health risks will not exceed District allowable levels; the permit requirements listed on page 1 of this report must be included for this proposed unit.

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

5.2 AAQA

The emissions from the proposed equipment will not cause or contribute significantly to a violation of the State and National AAQS.

6. Attachments

A. Modeling request from the project engineer

B. Additional information from the applicant/project engineer

C. Prioritization score w/ toxic emissions summary

D. AAQA results

Ambient air concentrations of criteria pollutants are recorded at monitoring stations throughout the San Joaquin Valley. Monitoring stations may not measure all necessary pollutants, so background data may need to be collected from multiple sources. The following stations were used for this evaluation:

Monitoring Stations

Pollutant	Station Name	County	City	Measurement Year
CO	Arvin - Di Giorgio	Kern	Arvin	2016
NOx	Bakersfield-California Avenue	Kern	Bakersfield	2016
PM10	Bakersfield-California Avenue	Kern	Bakersfield	2016
PM2.5	Bakersfield-California Avenue	Kern	Bakersfield	2016
SOx	Fresno - Garland	Fresno	Fresno	2016

Technical Services performed modeling for directly emitted criteria pollutants with the emission rates below:

Emission Rates (lbs/hour)

Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
532 to 541 (Each)	1	0.03	0.01	0.19	0.03	0.03

Emission Rates (lbs/year)

Unit ID	Process	NOx	SOx	CO	PM10	PM2.5
532 to 541 (Each)	1	278	128	1682	287	287

The AERMOD model was used to determine if emissions from the project would cause or contribute to an exceedance of any state of federal air quality standard. The parameters outlined below and meteorological data for Connor from 2013-2017 were used for the analysis:

The following parameters were used for the review:

Point Source Parameters

Unit ID	Unit Description	Release Height (m)	Temp. (°K)	Exit Velocity (m/sec)	Stack Diameter (m)	Vertical/ Horizontal/ Capped
532-0 to 541-0	215 BHP NG/LPG Engines (Each)	3.66	943	61.24	0.10	Vertical

5. Conclusion

5.1 RMR

The cumulative acute and chronic indices for this facility, including this project, are below 1.0; and the cumulative cancer risk for this facility, including this project, is less than 20 in a million. In addition, the cancer risk for each unit in this project is less than 1.0 in a

Appendix G:
Draft ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1738-532-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

Arnaud Marjollet, Director of Permit Services

S-1738-532-0 : Sep 8 2016 11:46AM -- PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-533-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

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CONDITIONS CONTINUE ON NEXT PAGE

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Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-533-0 : Sep 6 2018 11:48AM -- PROCOPIS : Joint Inspection NOT Required

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12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1738-534-0

ISSUANCE DATE: DRAFT

DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-534-0 Sep 6 2018 11:48AM – PROCOPIS Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-535-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-535-0 : Sep 6 2018 11:48AM – PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-536-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-536-0 : Sep 6 2019 11:48AM – PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-537-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-537-0 : Sep 5 2019 11:48AM – PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-538-0 **ISSUANCE DATE:** DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-538-0 : Sep 6 2018 11:48AM – PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit

12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]

14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]

15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit

16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]

17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit

19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]

21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit

23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-539-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-539-0 : Sep 6 2018 11:48AM – PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit
10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit
11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit
12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]
14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]
15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit
16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]
17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]
18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit
19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]
21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit
22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit
23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-540-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit

12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]

14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]

15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit

16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]

17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit

19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]

21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit

23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

DRAFT

PERMIT NO: S-1738-541-0

ISSUANCE DATE: DRAFT

LEGAL OWNER OR OPERATOR: CALIFORNIA RESOURCES PRODUCTION CORP
MAILING ADDRESS: 11109 RIVER RUN BLVD
BAKERSFIELD, CA 93311

LOCATION: LIGHT OIL WESTERN STATIONARY SOURCE
KERN COUNTY
CA

EQUIPMENT DESCRIPTION:
215 BHP ARROW MODEL A160 (OR EQUIVALENT) RICH BURN FIELD GAS/LPG-FIRED IC ENGINE WITH NSCR AND A/F RATIO CONTROLLER, POWERING EITHER A WELL PUMPING UNIT OR AN ELECTRICAL GENERATOR

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. The permittee shall obtain written District approval for the use of any equivalent equipment not specifically approved by this Authority to Construct. Approval of the equivalent equipment shall be made only after the District's determination that the submitted design and performance of the proposed alternate equipment is equivalent to the specifically authorized equipment. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The permittee's request for approval of equivalent equipment shall include the make, model, manufacturer's maximum rating, manufacturer's guaranteed emission rates, equipment drawing(s), and operational characteristics/parameters. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Alternate equipment shall be of the same class and category of source as the equipment authorized by the Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Samir Sheikh, Executive Director / APCO

DRAFT

Arnaud Marjollet, Director of Permit Services

S-1738-541-0 : Sep 6 2018 11:49AM – PROCOPIS : Joint Inspection NOT Required

6. No emission factor and no emission shall be greater for the alternate equipment than for the proposed equipment. No changes in the hours of operation, operating rate, throughput, or firing rate may be authorized for any alternate equipment. [District Rule 2201] Federally Enforceable Through Title V Permit

7. Prior to operating equipment under this Authority to Construct, permittee shall surrender NOx emission reduction credits for the following quantity of emissions: 1st quarter - 93 lb, 2nd quarter - 93 lb, 3rd quarter - 94 lb, and fourth quarter - 94 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

8. ERC Certificate Number S-1622-2 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

9. Prior to operating equipment under this Authority to Construct, permittee shall surrender VOC emission reduction credits for the following quantity of emissions: 1st quarter - 96 lb, 2nd quarter - 96 lb, 3rd quarter - 97 lb, and fourth quarter - 97 lb. These amounts include the applicable offset ratio specified in Rule 2201 Section 4.8 (as amended 2/18/2016) for the ERC specified below. [District Rule 2201] Federally Enforceable Through Title V Permit

10. ERC Certificate Number S-1713-1 (or a certificate split from this certificate) shall be used to supply the required offsets, unless a revised offsetting proposal is received and approved by the District, upon which this Authority to Construct shall be reissued, administratively specifying the new offsetting proposal. Original public noticing requirements, if any, shall be duplicated prior to reissuance of this Authority to Construct. [District Rule 2201] Federally Enforceable Through Title V Permit

11. No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101] Federally Enforceable Through Title V Permit

12. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]

13. The engine may only operate in the Buena Vista Nose lease. [District Rule 4102]

14. The equipment shall not be located within 1,000 ft of any K-12 school. [CH&SC 42301.6]

15. Permittee shall notify the District Compliance Division of each location at which the IC engine is located in excess of 24 hours. Such notification shall be made no later than 48 hours after starting operation at the location. [District Rule 1070] Federally Enforceable Through Title V Permit

16. The engine must operate at least 815 meters (2,674 feet) from the nearest receptor or boundary. [District Rule 4102]

17. The exhaust stack shall vent vertically upward. The vertical exhaust flow shall not be impeded by a rain cap (flapper ok), roof overhang, or any other obstruction. [District Rule 4102]

18. This engine shall be equipped with an operational non-resettable elapsed time meter or other APCO approved alternative. [District Rule 4702] Federally Enforceable Through Title V Permit

19. IC engine shall be equipped with air/fuel ratio controller which readily indicates air/fuel ratio setting within tolerance limits as recommended by the catalyst system supplier. [District Rule 2201 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

20. Air-to-fuel ratio controller(s) shall be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times. [District Rule 2201 and 40 CFR 60 Subpart JJJJ]

21. Emissions from this IC engine shall not exceed any of the following limits: NOx: 5 ppmv @ 15% O2 or 0.06 g/bhp-hr; 0.01 g-PM10/hp-hr; CO: 50 ppmv @ 15% O2 or 0.364 g/bhp-hr; or VOC: 15 ppmv @ 15% O2 or 0.062 g/hp-hr. [District Rules 2201, 4701, 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

22. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rules 2201 and 4201] Federally Enforceable Through Title V Permit

23. The engine shall be fired only on field gas or LPG with a sulfur content of less than or equal to 3.0 grains per 100 dry standard cubic feet of fuel gas. [District Rules 2201 and 4801] Federally Enforceable Through Title V Permit

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24. LPG usage may not exceed 500 hours a year. [District Rule 2201]

25. Source testing of PM10 emission concentrations shall be conducted while firing on LPG on one of the engines S-1738-532-0 through '-541-0 within 60 days of firing on LPG. Test data from a representative similar engine can be utilized in lieu of source testing this unit. [District Rule 2201] Federally Enforceable Through Title V Permit

26. Source testing of the NOx, CO and VOC emission concentrations shall be conducted within 60 days of initial startup and at least once every 24 months thereafter. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

27. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit

28. Emissions source testing shall be conducted with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

29. For emissions source testing, the arithmetic average of three 30-consecutive-minute test runs shall apply. If two of three runs are above an applicable limit, the test cannot be used to demonstrate compliance with an applicable limit. VOC emissions shall be reported as methane. VOC, NOx, and CO concentrations shall be reported in ppmv, corrected to 15% oxygen. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

30. The following test methods shall be used: NOx (ppmv) - EPA Method 7E or ARB Method 100, CO (ppmv) - EPA Method 10 or ARB Method 100, stack gas oxygen - EPA Method 3 or 3A or ARB Method 100; VOC (ppmv) - EPA Method 18, 25A or 25B, or ARB Method 100; and PM10 - EPA Method 201A or EPA Method 5. [District Rules 1081 and 4702] Federally Enforceable Through Title V Permit

31. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

32. All alternate monitoring parameter emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rule 4702] Federally Enforceable Through Title V Permit

33. If the engine is fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the permittee shall maintain on file copies of all field gas and LPG bills and supplier certifications for a period of five years. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

34. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, then the sulfur content of the field gas being fired in the engine shall be determined using EPA Method 6C, EPA Method 8, or ARB Method 100. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

35. If the engine is not fired on field gas or LPG certified by the supplier to have a sulfur content of 3.0 grains per 100 dscf or less, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit

36. Permittee shall maintain accurate records of fuel gas BTU content, and daily records of volume and sulfur content of gas burned. [District Rule 2201] Federally Enforceable Through Title V Permit

37. This engine shall be operated and maintained in proper operating condition according to the manufacturer's specifications. [District Rule 4702] Federally Enforceable Through Title V Permit

38. This engine shall be operated and maintained in proper operating condition per the manufacturer's requirements as specified on the Inspection and Monitoring (I&M) plan submitted to the District. [District Rule 4702 and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

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39. The operator shall collect data through the I&M plan in a form approved by the APCO. [District Rule 4702] Federally Enforceable Through Title V Permit

40. The permittee shall monitor and record the stack concentration of NOx (as NO2), CO, and O2 at least once every calendar quarter (in which a source test is not performed) using a portable emission monitor that meets District specifications. Monitoring shall not be required if the engine is not in operation, i.e. the engine need not be started solely to perform monitoring. Monitoring shall be performed within 5 days of restarting the engine unless monitoring has been performed within the last month. Records must be maintained of the dates of non-operation to validate extended monitoring frequencies. [District Rules 2520, 4701 and 4702] Federally Enforceable Through Title V Permit

41. All emission readings shall be taken with the unit operating either at conditions representative of normal operations or conditions specified in the permit-to-operate. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations or a protocol approved by the APCO. Emission readings taken by the portable analyzer shall be averaged over a 15 consecutive-minute period by either taking a cumulative 15 consecutive-minute sample reading or by taking at least five (5) readings, evenly spaced out over the 15 consecutive-minute period. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

42. If either the NOX or CO concentrations corrected to 15% O2, as measured by the portable analyzer, exceed the allowable emission concentration, the permittee shall return the emissions to within the acceptable range as soon as possible, but no longer than 8 hours after detection. If the portable analyzer readings continue to exceed the allowable emissions concentration after 8 hours, the permittee shall notify the District within the following 1 hour, and conduct a certified source test within 60 days of the first exceedance. In lieu of conducting a source test, the permittee may stipulate a violation has occurred, subject to enforcement action. The permittee must then correct the violation, show compliance has been re-established, and resume monitoring procedures. If the deviations are the result of a qualifying breakdown condition pursuant to Rule 1100, the permittee may fully comply with Rule 1100 in lieu of the performing the notification and testing required by this condition. [District Rules 2520, 4701, and 4702] Federally Enforceable Through Title V Permit

43. The permittee shall maintain an engine operating log to demonstrate compliance. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702, and 40 CFR 60 Subpart JJJJ] Federally Enforceable Through Title V Permit

44. The permittee shall maintain records of: (1) total hours of operation; (2) type and quantity of fuel used; (3) maintenance or modifications performed; (4) the date and time of NOx, CO, and O2 measurements; (5) the O2 concentration in percent and the measured NOx and CO concentrations corrected to 15% O2; (6) make and model of exhaust gas analyzer; (7) exhaust gas analyzer calibration records; and (8) a description of any corrective action taken to maintain the emissions within the acceptable range. [District Rules 4701 and 4702] Federally Enforceable Through Title V Permit

45. The permittee shall update the I&M plan for this engine prior to any planned change in operation. The permittee must notify the District no later than seven days after changing the I&M plan and must submit an updated I&M plan to the APCO for approval no later than 14 days after the change. The date and time of the change to the I&M plan shall be recorded in the engine's operating log. For modifications, the revised I&M plan shall be submitted to and approved by the APCO prior to issuance of the Permit to Operate. The permittee may request a change to the I&M plan at any time. [District Rule 4702] Federally Enforceable Through Title V Permit

46. All records shall be maintained and retained on-site for a minimum of five (5) years, and shall be made available for District inspection upon request. [District Rules 2201 and 4702] Federally Enforceable Through Title V Permit